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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/726,026

12/01/2003

Yi He

2669

24346

7590

03/29/2006

JAY CHESAVAGE
3833 MIDDLEFIELD
PALO ALTO, CA 94303

EXAMINER

CHIAM, DINH D

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,026

Applicant(s)

HE ET AL.

Examiner

Erin D. Chiem

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-10 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) 3, 5, 7, 14, 15, 22 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6, 8, 9, 13, 16-21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 3, 5, 7, 14, 15, 22 and 24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 and 21 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the election filed on November 14, 2006. Currently claims canceled, and currently claims 1-3,5-9 and 13-24 are pending.

Election/Restrictions

Claims 3, 5, 7, 14, 15, 22 and 24 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 14, 2006.

The examiner appreciates applicant's clear and concise listing of all claims readable on the elected species.

Information Disclosure Statement

The IDS filed on August 24, 2004 is received and considered, see the attached form US-1449.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because current drawings are not clear. For example, in Fig. 4 it is unclear whether the TVOA is translucent or opaque due to the poor resolution and further more, the labels are half hand written and half drawn-in. And in Fig. 5, the arrow labeled "wire and shutter" is pointing to a black circular dot. Moreover, the "wire and shutter" appears to be a critical element

Art Unit: 2883

in miniaturizing the integrated TVOA, the examiner respectfully requests a detail and focused drawing of the actuating of the device. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

Claim 1 is objected to because of the following informalities: in lines 21- 23 the recitation "said variable optical attenuator comprising said input fiber and said output fiber both having exposed fiber ends adjacent to each other and to a reflective shutter" is unclear

In line 1 and claim 1 on page 3, the recitation needs the word "is" in front of "supported."

These are exemplary informality that the examiner respectfully points out. Appropriate correction is required for the cited informalities and others in the claims as needed.

Claim 1 is further objected to the content's clarity. In lines 17-20 on page 2, recites the variable optical attenuator positioned...between said reflective surface and one of said input and said output fibers; the examiner respectfully request clarification whether the reflector recites in line 6 is a part of the attenuator. Similarly, in the preamble, the "device" in line 4 the variable optical attenuator? For the purpose of examination, the examiner considers the reflector in line 6 is a part of the VOA and the input and output fibers are considered to be the same.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Claims 1-2, 6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao et al. (US 2002/0031324 A1), "Cao" hereinafter, in view of Gage et al. (US 2003/0081901 A1), "Gage" hereinafter.

Claim 1: In Fig. 4, Cao discloses the operation of variable optical attenuator (VOA) that is exemplified in Fig. 3a and used in a system such as the one shown in Fig. 1. The VOA comprises an input fiber 402 and output fiber 406; a reflector, the reflector positioned to reflect a part of the input optical beam at said reflective surface 302 as a reflected optical beam and to transmit a part of the input optical beam as a transmitted optical beam; a detector (204) positioned to receive the transmitted optical beam and to produce a detector output [0030]; a VOA positioned in the optical path between said reflective surface and one of said input and said output fibers to attenuate light in response to a control signal; said VOA comprising said input fiber 402 and said output fiber 406 both having exposed fiber ends adjacent to each other and a reflective shutter placed in front of at least one of said input or said output fiber, said reflective shutter supported by a current carrying wire perpendicular to a magnetic field such that said reflective shutter on said current carrying wire is responsive to the magnetic field produced by said current carrying wire and said magnetic field [0031]; said control signal being coupled to the current in said current carrying wire.

Claim 2 and 6: The VOA is positioned to attenuate the variable input optical beam incident to said reflective surface, and wherein the detector output indicates a power level of the output optical beam. The VOA attenuates light by reflecting light.

Art Unit: 2883

However, Cao does not disclose a housing to hold said optical detector, said reflector, said variable optical attenuator, said input and said output fibers as an integrated package. Moreover, the housing has a first end to hold said optical detector and said reflector, and a second, opposing end to hold said input and said output fibers.

Gage discloses in Figs. 3A and 3B a fiber optic tap comprising a housing 300 to hold said optical detector 324, said reflector 316a, said variable optical attenuator 300, said input 306 and said output 308 fibers as an integrated package. Moreover, the housing has a first end 324 to hold said optical detector and said reflector, and a second, opposing end to hold said input and said output fibers. Gage's purpose of integrating the optical elements into one housing is to maintain the optical intensity of the input and the output fiber over a range of wavelengths [0005].

Since Cao and Gage are both from the same field of endeavor, the purpose disclosed by Gage would have been recognized in the pertinent art of Cao.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Cao's VOA and Gage's integration the various optical elements coupled to a photodiode such as a TO-can. The motivation for integrating the fiber tap and the VOA is to prevent optical coupling loss and to maintain the optical intensity in the input and the output fiber over a range of wavelengths.

Claims 13, 16-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gage, in view of Cao and Watanabe et al. (US 5,917,643) "Watanabe" hereinafter.

Gage discloses in Fig. 2A and Fig. 3A a device comprising:

- a housing having a first end and a second opposing end (300);

Art Unit: 2883

- optical detector engaged to said first end (334);
- a collimator lens having a flat end lens facet in said housing (210)
- a capillary body being in said housing to hold input and output fibers that exit said housing at said second opposing end and having an end facet facing said collimator (208, 204, 206);
- flat end lens (316);

However Gage does not disclose a magnet in said housing to produce a magnetic field;

Watanabe discloses a device comprising

- a housing having a first end and a second opposing end (1);
- optical detector engaged to said first end (11);
- a collimator lens (12);
- a magnet in said housing to produce a magnetic field (5);

for the purpose as explain Cao's disclosure of the operation of variable optical attenuator (VOA) that is exemplified in Fig. 3a and used in a system such as the one shown in Fig. 1. The VOA comprises an input fiber 402 and output fiber 406; a reflector, the reflector positioned to reflect a part of the input optical beam at said reflective surface 302 as a reflected optical beam and to transmit a part of the input optical beam as a transmitted optical beam; a detector (204) positioned to receive the transmitted optical beam and to produce a detector output [0030]; a VOA positioned in the optical path between said reflective surface and one of said input and said output fibers to attenuate light in response to a control signal; said VOA comprising said input fiber 402 and said output fiber 406 both having exposed fiber ends adjacent to each other and a

Art Unit: 2883

reflective shutter placed in front of at least one of said input or said output fiber, said reflective shutter supported by a current carrying wire perpendicular to a magnetic field such that said reflective shutter on said current carrying wire is responsive to the magnetic field produced by said current carrying wire and said magnetic field [0031]; said control signal being coupled to the current in said current carrying wire.

Since Gage, Watanabe, and Cao are all from the same field of endeavor, the purpose disclosed by Cao would have been recognized in the pertinent art of Gage and Watanabe.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to recognize a variable attenuator operates with electromagnetic actuator, as taught by Cao, is known to be used in a compact monitoring device such as one disclosed by Cage for the purpose of maintaining a leveled optical intensity in the input and output signal [0005]. **The motivation** for integrating the elements into a compact sized device is to reduce coupling loss and the miniaturized device has more robust applications. Furthermore, it has been held that forming an article integrally which has formerly been formed as separate components and put together involves only routine skill in the art. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

Art Unit: 2883

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800